

REMARKS

Applicants note the filing of an Information Disclosure Statement herein on or about February 7, 2001 and note that no copy of the PTO-1449 was returned with the outstanding Office Action. Applicant respectfully requests that the information cited on the PTO-1449 be made of record herein.

The Office Action mailed July 30, 2002, has been received and reviewed. Claims 1 through 37 are currently pending in the application. Claims 17 through 23 have been withdrawn from consideration as being drawn to a non-elected invention. Claims 1 through 16 and 24 through 36 stand rejected. Applicants have amended claims 1, 5, 9, 13, 15, and 24 and added claim 37, and respectfully request reconsideration of the application as amended herein.

35 U.S.C. § 102(b) Anticipation Rejections

Anticipation Rejection Based on U.S. Patent No. 5,182,641 to Diner et al.

Claims 1 through 4, 6 through 16, 24 through 34, and 36 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Diner et al. (U.S. Patent No. 5,182,641). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Claims 1-4 and 6-8

Independent claim 1 of the presently claimed invention is directed to a telepresence system for allowing an operator to interact with a remote operating environment. The system includes:

one or more input devices, wherein the one or more input devices produce raw data representative of operator commands;

an input conversion module for converting the raw data into a zone structure wherein the zone structure represents the operator commands in a format independent of any of the one or more input devices;

one or more device modules corresponding to one or more telepresence devices, the one or more device modules for converting the zone structure into telepresence device commands specific to the one or more telepresence devices, the telepresence device commands corresponding to at least a portion of said operator commands; and

a configuration module for associating a specific one of the one or more input devices which generated the zone structure with a specific one of the one or more telepresence devices which responds to the telepresence device commands resulting from the zone structure.

The Examiner cites Diner as anticipating claim 1. Applicants respectfully submit that Diner fails to teach all the limitation set forth in claim 1 of the presently amended claimed invention. For example, Diner fails to teach a telepresence system which includes “an input conversion module for converting the raw data into a zone structure . . . in a *format independent of any of the one or more input devices*.” (Emphasis added.)

Rather Diner explicitly teaches that the invention disclosed therein is directed to a remote control system which includes hand-controllers that generate “hand-controller *coordinates [which] are transformed to correspond with the coordinates* of a selected camera . . . so that the operator may orient his movements . . . with reference to the selected camera whose image is on display.” (Diner: Col. 2, lines 40-45, emphasis added). Diner does not teach of Applicants’ conversion of data from an input device into a zone structure which represents operator commands in a format independent of the input device. Additionally, Diner does not teach of

Applicants' device modules which correspond to a telepresence device which converts device-independent zone structure into telepresence device commands specific to the corresponding telepresence device.

Diner clearly teaches of a direct transformation from controller inputs to commands which are only altered in proportion to the magnification of the specific camera. In support, Diner teaches that "[t]he coordinates of the hand controllers may be transformed . . . to coincide with the coordinates of a camera the image of which is displayed on a selected one of a plurality of television monitors[.]. (Diner: Col. 5, lines 12-15). To further support Diner's lack of appreciation for an abstraction or device-independent layer, Diner specifically states that "the operator may select *the transformation of coordinates [from the input device]* for each hand controller 24 and 25 *to conform to the coordinates [of the output device]* of only one television camera at any one time[.]" (Diner: Col. 5, lines 38-42, emphasis added). Diner consistently reiterates this direct transformation by stating that "[o]ne may now *transform the hand-controller coordinates so that they match the coordinates* of the virtual camera." (Diner: Col. 8, lines 17-19, emphasis added).

An additional element of Applicants' invention, as claimed, includes a configuration module for associating a specific one of the input devices with a specific one of the telepresence devices. Since Diner teaches of only direct coupling and hence direct transformation, Diner has no use for such an indirect or abstract association of input devices with output devices, each capable of interfacing through a format independent of any of the input devices, as claimed by Applicants.

Applicants, therefore, respectfully submit that claim 1 is clearly not anticipated by Diner and respectfully request reconsideration thereof.

Applicants further submit that claims 2-4, and 6-8 are also allowable at least by virtue of their dependency from claim 1 as well as for the additional patentable subject matter introduced thereby.

Claims 9-16

Independent claim 9 of the presently claimed invention is directed to a method for controlling associated telepresence devices with a selected input device. The method includes:

- receiving raw data representative of movement commands;
- converting the raw data into a device-independent zone structure representing the movement commands;
- when the selected input device is selectively associated with the one or more associated telepresence devices, processing the zone structure with a device module corresponding to each of the one or more associated telepresence devices to obtain telepresence device commands corresponding to at least a portion of the movement commands for each of the associated telepresence devices; and
- transmitting the movement commands to the associated telepresence devices.

The Examiner cites Diner as anticipating claim 9. Applicants respectfully submit that Diner fails to disclose all of the limitations of the presently claimed invention as set forth in claim 9.

Particularly, Diner fails to teach the converting of the raw data into a device-independent zone structure representing the movement commands and then processing the zone structure with a device module corresponding to each of the selectively associated telepresence devices to obtain telepresence device commands corresponding to at least a portion of the movement commands for each of the associated telepresence devices.

As set forth above with respect to claim 1, Diner explicitly teaches that the invention disclosed therein is directed to a remote control system which includes hand-controllers that generate "hand-controller *coordinates [which] are transformed to correspond with the coordinates* of a selected camera . . . so that the operator may orient his movements . . . with reference to the selected camera whose image is on display." (Diner: Col. 2, lines 40-45, emphasis added). Such a teaching is contrary to the presently claimed invention and fails to

teach, suggest or motivate Applicants' abstract and device-independent "zone structure" for facilitating fungible input and output devices and their designated associations with one another.

Applicants, therefore, respectfully submit that claim 9 is allowable over Diner and respectfully request reconsideration and allowance thereof.

Applicants further submit that claims 10-16 are allowable as being dependent from claim 9, as well as for the additional patentable subject matter introduced thereby. Similarly, Applicants request reconsideration and allowance thereof.

Claims 24-34 and 36

Independent claim 24 of the presently claimed invention is directed to a telepresence system for allowing an operator to interact with a remote operating environment. The system includes a computer comprising:

- an input conversion module for receiving raw data representative of operator commands from at least one of the plurality of input devices and converting the raw data to a zone structure wherein the zone structure represents the operator commands in a format independent of any of the one or more input devices; and

- a plurality of device modules corresponding to the plurality of telepresence devices, wherein the device modules receive the zone structure and convert the zone structure to movement commands corresponding to the operator commands for each respective telepresence device.

The Examiner cites Diner as anticipating claim 24. Applicants respectfully submit that Diner fails to disclose all of the limitations of the presently claimed invention as set forth in claim 24.

Particularly, Diner fails to teach of the system including an input conversion module for receiving and converting raw data into a zone structure representing operator commands in a

format independent of any of the input devices. Additionally, Diner fails to teach of the system including device modules corresponding to telepresence devices which are capable of receiving zone structures and converting them to specific movement commands corresponding to telepresence devices. As set forth herein, Diner clearly teaches of a direct transformation from controller inputs to commands of the specific camera. In support, Diner teaches that “[t]he coordinates of the hand controllers may be transformed . . . to coincide with the coordinates of a camera the image of which is displayed on a selected one of a plurality of television monitors[.]. (Diner: Col. 5, lines 12-15).

Applicants, therefore, respectfully submit that claim 24 is clearly not anticipated by Diner and respectfully request reconsideration thereof.

Applicants further submit that claims 25-34, and 36 are also allowable at least by virtue of their dependency from claim 24 as well as for the additional patentable subject matter introduced thereby.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 5,182,641 to Diner et al.

Claims 5 and 35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Diner et al. (U.S. Patent No. 5,182,641). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 5 and 35 are improper because the claim limitations of the respective independent claims are not taught or suggested in the Diner reference. While the Examiner states that the limitation of wireless communication is well known, the respective other limitations of the corresponding independent claims, namely claims 1 and 24, are not taught, suggested or motivated in Diner.

Specifically, the limitations in claim 1 of conversion of data from an input device into a zone structure which represents operator commands in a format independent of the input device are not present or fairly suggested nor motivated. Additionally, Diner does not teach of Applicants' device modules which correspond to a telepresence device which converts device-independent zone structure into telepresence device commands specific to the corresponding telepresence device.

Similarly with respect to claim 24 from which claim 35 depends, Diner fails to teach of the system including an input conversion module for receiving and converting raw data into a zone structure representing operator commands in a format independent of any of the input devices. Additionally, Diner fails to teach of the system including device modules corresponding to telepresence devices which are capable of receiving zone structures and converting them to specific movement commands corresponding to telepresence devices.

Applicant thus respectfully submits that these rejections should be withdrawn and claims 5 and 35 be allowed.

ENTRY OF NEW CLAIM

Applicants respectfully request entry of new claim 37. New claim 37 should be entered because it is supported by the as-filed specification and drawings and does not add new matter to the application. Applicants submit that claim 37 is in condition for allowance.

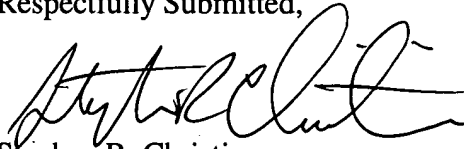
ENTRY OF AMENDMENTS

The amendments to claims 1, 5, 9, 13, 15, and 24 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application. Further, the amendments do not raise new issues or require a further search.

CONCLUSION

Claims 1-16 and 24-37 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Stephen R. Christian", written over a horizontal line.

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Enclosure: Version With Markings to Show Changes Made

**VERSION OF REPLACEMENT PARAGRAPHS OF SPECIFICATION
WITH MARKINGS TO SHOW CHANGES MADE**

Please replace the second full paragraph on page 10 with the following:

Figure 2 is a more detailed block diagram illustrating potential configurations of telepresence control 20 and telepresence devices 60. In one embodiment, the telepresence control 20 comprises input devices 22 and a computer [30]31. The input devices 22 are used to receive input, movement or commands from an operator that are then provided to computer [30]31. Computer [30]31 processes these commands and transmits them to the telepresence devices 60 via communication link 40, which may comprise a radio modem. The telepresence devices 60 then execute the operator commands.

Please replace the first full paragraph on page 13 with the following:

The input commands from the input devices are received by an input conversion module 34 operating at computer [30]31. The input conversion module 34 receives the raw input from the input devices 22 and converts the raw input into a zone structure that is by the computer [30]31 for each input device 22. The zone structure may use integers, for example, to define movement in a particular direction. Positive integers correspond to movement in one direction while negative integers correspond to movement in the opposite direction. The magnitude of the integer is often related to the speed of movement. The zone structure thus enables any input device 22 to be compatible with one or more telepresence devices 60.

Please replace the second full paragraph on page 13 with the following:

The zone structure is provided to the device modules 32, which processes the zone structure and issues the appropriate movement or operator command across the communication link 40 to the appropriate telepresence device. The raw data provided by the input devices [24]22 is converted to the zone structure. In this manner, the use of the zone structure, allows any input device to control any telepresence device and input devices are interchangeable.

Please replace the second full paragraph on page 15 with the following:

Because a single input device may not be capable of simultaneously controlling all of the telepresence devices 60, configuration module 36 allows an operator to easily change the particular telepresence devices 60 that are being controlled by a particular device. The configuration module 36 defines a plurality of views and each view corresponds to a particular set of devices. Typically, each view defines one input device and the telepresence devices being controlled by that input device. After the views are defined, the operator may switch to a particular view by issuing a verbal command that the computer [30]31 may recognize, a keyboard command, or other command. When a certain view is active, the selected input device may be used to control the designated telepresence devices. It is understood that more than one view may be active, but only one view is typically utilized because the operator can usually only interact with the visual representation of the operating environment provided by one of the camera sets at a time. If the video provided by another camera set is desired, the operator simply selects another view, a process that is significantly simpler than continually repositioning a particular camera.

VERSION OF CLAIMS WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) A telepresence system for allowing an operator to interact with a remote operating environment, the system comprising:

one or more input devices, wherein the one or more input devices produce raw data representative of operator commands;

an input conversion module for converting the raw data into a zone structure wherein the zone structure represents the operator commands in a format independent of any of the one or more input devices;

one or more device modules corresponding to one or more telepresence devices, the one or more device modules for converting the zone structure into telepresence device commands specific to the one or more telepresence devices, the telepresence device commands corresponding to at least a portion of the operator commands; and

a configuration module for associating a specific one of the one or more input devices which generated the zone structure with a specific one of the one or more telepresence devices which responds to the telepresence device commands resulting from the zone structure.

[a computer for receiving the raw data, the computer processing the raw data into a zone structure, wherein the zone structure is representative of the operator commands and is compatible with one or more telepresence devices; and

a communication link, wherein the operator commands in the zone structure are received by the one or more telepresence devices over the communication link such that the one or more input devices are configured to control the one or more telepresence devices, wherein the telepresence devices provide the operator with one or more visual representations of the operating environment.]

5. (Amended) A system as defined in claim 37 [1], wherein the communication link is a wireless communication link.

9. (Amended) In a system having input devices and telepresence devices, a method for controlling one or more associated [identified] telepresence devices with a selected input device, the method comprising the steps of:

receiving raw data representative of movement commands from the selected input device;

converting the raw data into a zone structure, wherein the zone structure represents the movement commands in a format independent of the selected input device and the one or more associated telepresence devices [is representative of movement commands];

when the selected input device is selectively associated with the one or more associated telepresence devices, processing the zone structure with a device module corresponding to [for] each of the one or more associated [identified] telepresence devices [device] to obtain telepresence device commands corresponding to at least a portion of the movement commands for each of the associated [identified] telepresence devices [device]; and

transmitting the movement commands to the associated [identified] telepresence devices.

13. (Amended) A method as defined in claim 9, wherein the associated [identified] telepresence devices only respond to portions of the zone structure that correspond to the axes of the associated [identified] telepresence devices.

15. (Amended) A method as defined in claim 9, further comprising the step of executing the movement commands by the associated [identified] telepresence devices.

24. (Amended) A telepresence system for allowing an operator to interact with a remote operating environment, the telepresence system comprising:

- a plurality of input devices;

- a plurality of telepresence devices, wherein one or more of the telepresence devices is configured to be controlled by one of the plurality of input devices and one or more of the telepresence devices is configured to provide a visual representation of the operating environment;

- a computer comprising:

- an input conversion module for [, the input conversion] receiving raw data representative of operator commands from at least one of the plurality of input devices and converting the raw data to a zone structure wherein the zone structure represents the operator commands in a format independent of any of the one or more input devices; and

- a plurality of device modules corresponding to the plurality of telepresence devices, wherein the device modules receive the zone structure and convert the zone structure to movement commands corresponding to the operator commands for each respective telepresence device; and

- a communication link for transmitting the movement commands to the telepresence devices.

37. (New) The system as defined in claim 1, further comprising a communication link, wherein the telepresence device commands are received by the one or more telepresence devices over a communication link such that the one or more input devices are configured to control the one or more telepresence devices, wherein the telepresence devices provide the operator with one or more visual representations of the operating environment.